



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/527,463	08/24/2005	Siobhan Olive Matthews	26661U	3584
20529 7590 02/04/2009 THE NATH LAW GROUP 112 South West Street Alexandria, VA 22314				
EXAMINER				
DRODGE, JOSEPH W				
ART UNIT		PAPER NUMBER		
1797				
MAIL DATE		DELIVERY MODE		
02/04/2009		PAPER		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/527,463

Applicant(s)

MATTHEWS ET AL.

Examiner

Joseph W. Drodge

Art Unit

1797

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 December 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 4-21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 and 4-21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/CDC)
- Paper No(s)/Mail Date _____

- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1,4 and 7-21 are rejected under 35 U.S.C. 102(b) as being anticipated by Prince et al patent 5,308,648. For claims 1 and 16, Prince et al disclose combining of 1st and 2nd materials in a process comprising: providing at least one near-critical or supercritical fluid in the form of a “viscosity reducing material” (see column 5, lines 3-68) to form a single phase solution with the materials and then removing the fluid from the solution as a result of the volatility of the supercritical fluid (see especially column 4, line 49-column 5, line 30). **The disclosed first “at least one polymer additive material” is dissolved in a 2nd material fluid (“at least one liquid carrier material”, see column 4, lines 49-54). Since the viscosity-reducing material is “mixed” with the liquid carrier material fluid and a single, sprayable (column 6, lines 2-8), phase is formed, the first polymer additive material(s) become dissolved in the mixture, hence dissolved in the near-critical supercritical fluid/viscosity reducing material (column 8, line 63-column 9, line 10). A single phase solution may be formed where the fluid is “near-critical” and below its critical temperature or pressure (column 5, lines 17-29). The fluid is volatile, so removed from the solution, later during spraying, in order to leave the 1st and 2nd materials (which is/are non-volatile) in a combined, form (column 4, lines 53-55 and column 6, lines 12-14). Also see column 9, line 65-column 10, line 5 concerning “solubility limit” of additive mixture and viscosity reducer/supercritical fluid with carrier**

material fluid, and column 7, lines 45-47 regarding viscosity reducing material being soluble in mixture of liquid carrier and polymer additive.

The Prince disclosure comprising "recirculation loops" and "re-circulators" combined with separate holding tanks and transfer lines, allow for a single phase solution to be formed of mixture of near critical fluid and carrier material(s) with dissolved plastics additive materials, prior to introduction or reintroduction of additional carrier material(s) and/or near critical fluids. Specifically for claim 16 & other apparatus claims, the "means for providing...dissolving...incorporating" comprise the mixers, pumps and recirculation loops of column 6, line 40-column 7, line 36 as well as the separate holding tanks, pumping systems and transfer lines of column 10, lines 5-9).

Prince et al also disclose the following: sequentially dissolving plural materials in the fluid as a result of their separate introduction or separate rates of dissolving for claims 2 and 3 (column 9, lines 5-10); materials in solid or semi-solid state for claim 4 (column 9, line 3 "slurries"); the fluid being carbon dioxide for claim 7 (column 5, lines 31-40); solution/formed material processing for claim 8 (column 8, lines 49-50); polymer melt processing such as extrusion molding for claims 9 **and 18-20** (column 18, line 47); **the process being continuous (column 8, lines 4-6) for claim 17**, function-altering material for claim 10 (column 4, line 52-53); the materials at least comprising plastics or polymers for claims 11 and 15 (column 4, line 52 etc.); addition of plural supercritical fluids that act as co-solvents selected among alcohols, pentane etc. for claims 12 and 14 (column 8, lines 65-68 with column 5, lines 30-35; addition of solvents and materials in varied proportions for claim 13 (column 10, lines 1-10); and providing

and combining means including tanks and conduits for claim 16 (figures); **fluid swelling is neither mentioned or precluded by the Prince disclosure for claim 21.**

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 5 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Prince et al patent 5,308,648 in view of DeSimone patent 5,922,833.

Claims 5 and 6 differ in requiring that the carbon dioxide being removed by the material by venting or suction, although Prince et al does disclose the fluid being volatile so as to separate from the material formed by mixing. DeSimone teaches to remove carbon dioxide from formed polymeric materials by venting and suction process steps (column 5, lines 47-54, column 9, lines 44-49 and column 10, lines 18-23. It would have been obvious to one of ordinary skill in the art to have utilized the suction and venting of DeSimone to more thoroughly remove all of the supercritical fluids to form a more purified end product.

Applicant's arguments filed on 12/18/2008 have been fully considered but they are not persuasive. It is argued (page 8 of the 12/18/08 Remarks) that Prince fails to first provide a supercritical fluid and only then at least partially dissolve a 1st material in the fluid and then further provide incorporating the solution into a 2nd material, and that no single phase is formed. It is responded that in Prince, incorporating all materials into a single phase in which the 1st material(s) is/are dissolved is inherent from an inimate combined mixture being formed and sprayable together and by the option of providing the near-critical or supercritical fluid as a single phase. The order of providing and incorporating facets, and "order of steps" are covered by consideration of the recirculation loops, recirculators and separate transfer lines disclosed in Prince.

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after

the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joseph Drodge at his direct government telephone number of 571-272-1140. The examiner can normally be reached on Monday-Friday from approximately 8:30 AM to 12:30 PM and 2:00 PM to 6:00 PM.

Alternatively, to contact the examiner, send a communication via E-mail communication to the Examiner's Patent Office E-mail address: "Joseph.Drodge@uspto.gov". Such E-mail communication should be in accordance with provisions of MPEP (Manual of Patent Examination Procedures) section 502.03 & related MPEP sections. E-mail communication must begin with a statement authorizing the E-mail communication and acknowledging that such communication is not secure and will be made of record, under Patent Internet Usage Policy Article 5. A suggested format for such authorization is as follows: "Recognizing that Internet communications are not secure, I hereby authorize the USPTO to communicate with me concerning any subject matter of this application by electronic mail. I understand that a copy of these communications will be made of record in the application file.

Additionally, the examiner's supervisor, Duane Smith, of Technology Center Unit 1797, can be reached at 571-272-1166.

Art Unit: 1797

The formal facsimile phone number, for official, formal communications, for the examining group where this application is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either private PAIR or Public PAIR, and through Private PAIR only for unpublished applications. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have any questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JWD

2/1/2009

/Joseph W. Drodge/

Primary Examiner, Art Unit 1797